WHAT IS CLAIMED IS:

1. A method of determining the ability of a *Mycobacterium tuberculosis* bacterium to oxidize a thioamide or a thiocarbonyl, said method comprising detecting a mutation in an EtaA gene (SEQ ID NO:1) in said bacterium, wherein detection of the mutation is indicative of decreased ability to oxidize a thioamide or a thiocarbonyl.

2. The method of claim 1, wherein the mutation is a frameshift mutation selected from the group consisting of: a deletion at position 65, an addition at position 567, and an addition at position 811.

3. The method of claim 1, wherein the mutation is a single nucleotide polymorphism which causes an amino acid substitution in an amino acid sequence encoded by said EtaA gene compared to an amino acid sequence of SEQ ID NO:2.

4. The method of claim 3, wherein the single nucleotide polymorphism causes an amino acid substitution selected from the group consisting of: G43C, P51L, D58A, Y84D, T186K, T342K, and A381P.

5. A method of claim 1 wherein the mutation is detected by

(a) amplifying the EtaA gene, or a portion thereof containing the mutation, with a set of primers to provide an amplified product,

(b) sequencing the amplified product to obtain a sequence, and

(c) comparing the sequence of the amplified product with the sequence of a wild-type EtaA gene (SEQ ID NO:1) or portion thereof,

wherein a difference between the sequence of the amplified product and the sequence of the wild-type EtaA gene or portion thereof indicates the presence of a mutation.

6. A method of claim 5, wherein at least one of said primers is selected from the group consisting of:

5'-GGGGTACCGACATTACGTTGATAGCGTGGA-3' (SEQ ID NO:3),

5'-ATAAGAATGCGGCCGCAACCGTCGCTAAAGCTAAACC-3' (SEQ ID NO:4),

5' ATCATCCATCCGCAGCAC 3' (SEQ ID NO:5);

5' AAGCTGCAGGTTCAACC 3' (SEQ ID NO:6);

5' GCATCGTGACGTGCTTG 3' (SEQ ID NO:7);

5' AAGCTGCAGGTTCAACC 3' (SEQ ID NO:8);
5' TGAACTCAGGTCGCGAAC 3' (SEQ ID NO:9);
5' AACATCGTCGTGATCGG 3' (SEQ ID NO:10);
5' ATTTGTTCCGTTATCCC 3' (SEQ ID NO:11);
5' AACCTAGCGTGTACATG 3' (SEQ ID NO:12);
5' TCTATTTCCCATCCAAG 3 (SEQ ID NO:13); and
5' GCCATGTCGGCTTGATTG 3' (SEQ ID NO:14).

7. A method of claim 5, wherein the primers are
5'-GGGGTACCGACATTACGTTGATAGCGTGGA-3' (SEQ ID NO:3), and
5'-ATAAGAATGCGGCCGCAACCGTCGCTAAAGCTAAACC-3' (SEQ ID NO:4).

8. A method of claim 5, wherein said amplification is by polymerase chain reaction.

9. A method of claim 1, wherein said mutation is detected by hybridizing DNA from said bacterium to a test nucleic acid under stringent conditions.

10. A method of claim 9, wherein either said DNA from said bacterium or said test nucleic acid is immobilized on a solid support.

11. A method of claim 1, wherein said mutation is detected by
(a) subjecting said EtaA gene to digestion by restriction enzymes,
(b) separating the resulting restriction products to form a pattern of restriction fragment lengths, and
(c) comparing the pattern of restriction fragment lengths to a pattern of restriction fragment lengths formed by subjecting a known EtaA gene to the same restriction enzymes.

12. A method of claim 11, wherein said known EtaA gene is selected from the group consisting of (a) a frameshift mutation consisting of a deletion at position 65, an addition at position 567, and an addition at position 811, and (b) a single nucleotide polymorphism which causes an amino acid substitution selected from the group consisting of: G43C, P51L, D58A, Y84D, T186K, T342K, and A381P.

13. A method of claim 1, wherein said mutation is detected by specifically binding an antibody to a mutated product of the EtaA gene, wherein the specific binding of the antibody to the mutated gene product is indicative of a mutation which inhibits the ability of the bacterium to oxidize a thioamide.

14. A method of claim 13, wherein said gene product is in, or is isolated from, sputum.

15. A method of claim 13, wherein detection of said specific binding of said antibody and said mutated gene product is by ELISA.

16. A method of claim 1, wherein said thioamide or thiocarbonyl is selected from the group consisting of ethionamide, thiacetazone, and thiocarlide.

17. A method of claim 1, wherein said mutation is detected by

(a) culturing said bacterium in the presence of ethionamide; and

(b) testing for the presence or absence of (2-ethyl-pyridin-4-yl)methanol, wherein the absence of (2-ethyl-pyridin-4-yl)methanol indicates that the bacterium has a mutation which is indicative of decreased ability to oxidize a thioamide.

18 A method of claim 17 wherein the presence or absence of (2-ethyl-pyridin-4-yl)methanol is tested by subjecting a medium in which the bacterium is cultured, or the bacterium, to analysis by thin-layer chromatography, high pressure liquid chromatography, or mass spectrometry.

19 A method of claim 17, wherein the ethionamide of step (a) is radioactively labeled.

20. A method of claim 17, wherein the (2-ethyl-pyridin-4-yl)methanol is radioactively labeled.

21. A method of screening an individual for a *Mycobacterium tuberculosis* bacterium resistant to treatment by a thioamide or a thiocarbonyl drug, comprising

(a) obtaining a biological sample containing said bacterium from said individual, and

(b) detecting a mutation in an EtaA gene (SEQ ID NO:1) in said bacterium, wherein detection of the mutation is indicative said bacterium is resistant to treatment by a thioamide or a thiocarbonyl drug.

22. A method of claim 21, wherein the mutation is detected by

(a) amplifying the EtaA gene with a set of primers to provide an amplified product,

(b) sequencing the amplified product to obtain a sequence, and

(c) comparing the sequence of the amplified product with the sequence of a wild-type EtaA gene (SEQ ID NO:1),

wherein a difference between the sequence of the amplified product and the sequence of the wild-type EtaA gene indicates the presence of a mutation.

23. A method of claim 21, wherein at least one of said primers is selected from the group consisting of:
5'-GGGGTACCGACATTACGTTGATAGCGTGGA-3' (SEQ ID NO:3),
5'-ATAAGAATGCGGCCGCAACCGTCGCTAAAGCTAAACC-3' (SEQ ID NO:4), 5' ATCATCCATCCGCAGCAC 3' (SEQ ID NO:5);
5' AAGCTGCAGGTTCAACC 3' (SEQ ID NO:6);
5' GCATCGTGACGTGCTTG 3' (SEQ ID NO:7);
5' AAGCTGCAGGTTCAACC 3' (SEQ ID NO:8);
5' TGAACTCAGGTCGCGAAC 3' (SEQ ID NO:9);
5' AACATCGTCGTGATCGG 3' (SEQ ID NO:10);
5' ATTTGTTCCGTTATCCC 3' (SEQ ID NO:11);
5' AACCTAGCGTGTACATG 3' (SEQ ID NO:12);
5' TCTATTTCCCATCCAAG 3 (SEQ ID NO:13); and
5' GCCATGTCGGCTTGATTG 3' (SEQ ID NO:14).

24. A method of claim 21, wherein said primers are 5'-GGGGTACCGACATTACGTTGATAGCGTGGA-3' (SEQ ID NO:3) and 5'-ATAAGAATGCGGCCGCAACCGTCGCTAAAGCTAAACC-3' (SEQ ID NO:4).

25. A kit for determining the ability of a *Mycobacterium tuberculosis* bacterium to oxidize a thioamide or a thiocarbonyl, the kit comprising:

(a) a container, and

(b) primers for amplifying an EtaA gene of said bacterium or a portion of said EtaA gene containing a mutation affecting the ability of the bacterium to oxidize a thioamide.

26. A kit of claim 25, wherein at least one of said primers is selected from the group consisting of:
5'-GGGGTACCGACATTACGTTGATAGCGTGGA-3' (SEQ ID NO:3),
5'-ATAAGAATGCGGCCGCAACCGTCGCTAAAGCTAAACC-3' (SEQ ID NO:4),
5' ATCATCCATCCGCAGCAC 3' (SEQ ID NO:5);
5' AAGCTGCAGGTTCAACC 3' (SEQ ID NO:6);
5' GCATCGTGACGTGCTTG 3' (SEQ ID NO:7);
5' AAGCTGCAGGTTCAACC 3' (SEQ ID NO:8);
5' TGAACTCAGGTCGCGAAC 3' (SEQ ID NO:9);
5' AACATCGTCGTGATCGG 3' (SEQ ID NO:10);
5' ATTTGTTCCGTTATCCC 3' (SEQ ID NO:11);
5' AACCTAGCGTGTACATG 3' (SEQ ID NO:12);
5' TCTATTTCCCATCCAAG 3 (SEQ ID NO:13); and
5' GCCATGTCGGCTTGATTG 3' (SEQ ID NO:14).

27. A kit of claim 25, wherein the primers are
5'-GGGGTACCGACATTACGTTGATAGCGTGGA-3' (SEQ ID NO:3), and
5'-ATAAGAATGCGGCCGCAACCGTCGCTAAAGCTAAACC-3' (SEQ ID NO:4).

28. A kit of claim 25, further comprising a mutated EtaA gene for use as a positive control.

29. A kit of claim 28, wherein said mutated EtaA gene is selected from the group consisting of (a) a frameshift mutation consisting of a deletion at position 65, an addition at position 567, and an addition at position 811, and (b) a single nucleotide polymorphism which causes an amino acid substitution selected from the group consisting of: G43C, P51L, D58A, Y84D, T186K, T342K, and A381P.

30. A kit for determining the ability of a *Mycobacterium tuberculosis* bacterium to oxidize a thioamide, the kit comprising:
(a) a container, and
(b) (2-ethyl-pyridin-4-yl)methanol.

31. A kit for determining the ability of a *Mycobacterium tuberculosis* bacterium to oxidize a thioamide, the kit comprising:

(a) a container, and

(b) radiolabeled ethioamide.

32. A kit for determining the ability of a *Mycobacterium tuberculosis* bacterium to oxidize a thioamide or thiocarbonyl, the kit comprising:

(a) a container, and

(b) an antibody which specifically binds to a product of a EtaA gene selected from the group consisting of a wild-type EtaA gene (SEQ ID NO:1) and a mutated EtaA gene.

33. A kit for determining the ability of a *Mycobacterium tuberculosis* bacterium to oxidize a thioamide, the kit comprising:

(a) a container, and

(b) an antibody which specifically binds to (2-ethyl-pyridin-4-yl)methanol.